

CLAIMS:

1. A device for generating a three-dimensional image of an object (9) which is subject to a cyclic movement, comprising an imaging device (1) to generate projection pictures (P_{i-1} , P_i , P_{i+1} , P_j , P_k , P_l) of the object from various projection directions and a data processing device (7) coupled to this for reconstruction of a three-dimensional image of the object from said projection pictures, wherein the data processing device (7) is designed to use for reconstruction of the three-dimensional image only those projection pictures (P_i , P_k , P_l) for which the projection lines (l_i , l_k , l_l) of a characteristic object feature intersect approximately in the same spatial point (l_0).
- 10 2. A device as claimed in claim 1, characterized in that the imaging device is an X-ray device (1) with an X-ray source (2) and an X-ray detector (5) which are mounted rotatable about a common axis.
- 15 3. A device as claimed in claim 1, characterized in that it comprises a display device (8) coupled with the data processing device (7) to display the reconstructed three-dimensional image.
4. A device as claimed in claim 1, characterized in that the characteristic object feature is a marker on the object, in particular a catheter or stent.
- 20 5. A device as claimed in claim 1, characterized in that the characteristic object feature is a branch point (l_0) of an object structure in particular a vessel.
6. A device as claimed in claim 1 where the data processing device (7) is
25 designed
 - a) to select from a number of a projection pictures (P_i , P_j , P_k , P_l) a first projection picture (P_i);
 - b) for said first projection picture (P_i) to select a second projection picture (P_k) taken from another projection direction such that the projection lines (l_i , l_k) of a characteristic

object feature for both projection pictures (P_i , P_k) intersect at least approximately at a spatial point (\underline{x}_0);

- c) to select further projection pictures (P_l) for the reconstruction of the three-dimensional image such that the associated projection lines (l_l) of the characteristic object feature run approximately through said spatial point (\underline{x}_0).

7. A device as claimed in claim 6, characterized in that the projection direction of the second projection picture (P_k) lies approximately at an angle (α) of 90° to the projection direction of the first projection picture (P_i).

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8. A method for generating a three-dimensional image of an object (9) which is subject to a cyclic movement, comprising the steps of:

- a) generation of a number of projection pictures (P_{i-1} , P_i , P_{i+1} , P_j , P_k , P_l) of the object (9) from various spatial directions;
- 15 b) selection of projection pictures (P_i , P_k , P_l) for which the projection lines (l_i , l_k , l_l) of a characteristic object feature intersect approximately at the same spatial point (\underline{x}_0);
- c) reconstruction of the three-dimensional image from the projection pictures selected in step b).

20 9. A method as claimed in claim 8, characterized in that the projection pictures (P_{i-1} , P_i , P_{i+1} , P_j , P_k , P_l) are generated by X-ray projection of an object (9), wherein the projection centers (S_i , S_j , S_k , S_l) are distributed on a circle arc about the object.

10. A method as claimed in claim 8, characterized in that the reconstructed three-dimensional image is shown on a display device (8).

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